

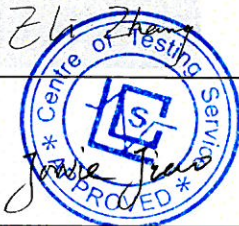





TEST REPORT IEC 60065 Audio, video and similar electronic apparatus – Safety requirements	
Report Number.....	LCS170922076AS
Date of issue.....	2017-12-05
Total number of pages	53
Name of Testing Laboratory preparing the Report	Shenzhen LCS Compliance Testing Laboratory Ltd. 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Applicant's name	Shenzhen Wesion Technology Co., Ltd.
Address.....	Room 511, A Building, Mingyou Purchasing Center, Baoyuan Road, Xixiang Street, Bao'an District, Shenzhen, China. 518102
Test specification:	
Standard	IEC 60065:2014 (Eight Edition)
Test procedure.....	Type test
Non-standard test method	N/A
Test Report Form No.	IEC60065M
Test Report Form(s) Originator	Intertek Semko AB
Master TRF	Dated 2016-10
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General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	



Test item description	Single Board Computer	
Trade Mark	Khadas	
Manufacturer.....	Same as applicant	
Model/Type reference.....	VIM2 Max, VIM2 Pro, VIM2 Basic	
Ratings	Input: 5V $\overline{=}$, 2000mA; Output: USB1: 5V $\overline{=}$, 900mA; USB2: 5V $\overline{=}$, 500mA;	
<input checked="" type="checkbox"/> Testing Laboratory:		
Testing location/ address	Shenzhen LCS Compliance Testing Laboratory Ltd. 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China	
Tested by (name, function, signature)	Eli. Zhang	
Checked by (name, function, signature)	Jowie Jiao	 
Approved by (name, function, signature) ..	Hart Qiu	

**List of Attachments (including a total number of pages in each attachment):**

Attachment No. 1: 16 pages of European group differences and national differences according to EN 60065:2014

Attachment No. 2: Photo documentation. (4 pages)

Summary of testing:**Tests performed (name of test and test clause):**

- -IEC 60065:2014 ED8
- EN 60065:2014

Testing location:

Shenzhen LCS Compliance Testing Laboratory Ltd.
1/F., Xingyuan Industrial Park, Tongda Road,
Bao'an Avenue, Bao'an District, Shenzhen,
Guangdong, China

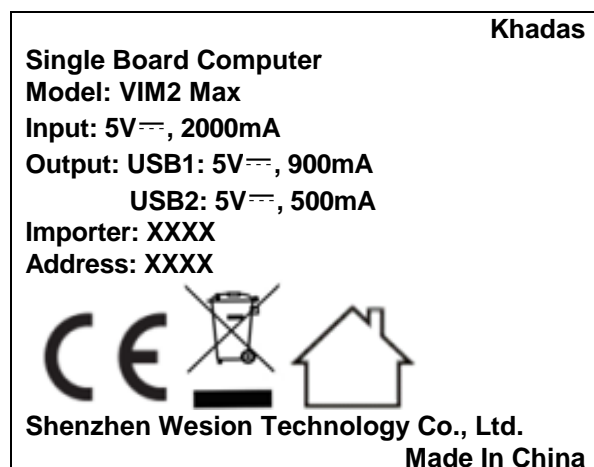
Summary of compliance with National Differences:

List of countries addressed: National Differences and Group Differences, Refer Attachment No. 1 for details

☒ **The product fulfils the requirements of EN 60065:2014.**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

**Remark:**

1. The height dimension of CE mark should not less than 5mm, the height dimension of WEEE symbol should not less than 7mm.



Test item particulars :	
Classification of installation and use : Potable	
Supply Connection : Not directly connected to mains	
Degree of protection against ingress of dust and liquid : IP20	
Possible test case verdicts: - test case does not apply to the test object.....: N/A (Not Applicable) - test object does meet the requirement: P (Pass) - test object does not meet the requirement.....: F (Fail)	
Testing: Date of receipt of test item : 2017-11-18 Date (s) of performance of tests..... : From 2017-11-18 to 2017-12-05	
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 6.2.5 of IEC60065:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....	Same as manufacturer
General product information: 1. The apparatus under test is Single Board Computer, manufactured by Shenzhen Wesion Technology Co., Ltd. 2. The ambient temperature is 45°C. 3. All models are the same except their model name and appearance, Due to the similarities for all models, the model VIM2 Max was selected as representative for all tests.	

TRF No. IEC60065M

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
3	GENERAL REQUIREMENTS		P
	Safety class of the apparatus	Class III	P
4	GENERAL TEST CONDITIONS		P
4.1.4	Ventilation instructions require the use of the test box		P
5	MARKING AND INSTRUCTIONS		P
5.1	General requirements		P
	Comprehensible and easily discernible		P
	Permanent durability against water and petroleum spirit	Compliance was checked by rubbing the marking by hand for 15s with cloth soaked with water and cloth soaked with petroleum spirit, it was not possible to remove marking plate and no curling observed after the test.	P
5.2	Identification and supply rating		P
	a) Identification, maker :	Trade mark : Khadas	P
	b) Model number or type reference :	VIM2 Max	P
	c) Class II symbol or Class II with functional earth symbol if applicable :	Class III equipment	N/A
	d) Nature of supply :	==	P
	e) Rated supply voltage :	5V	P
	f) Mains frequency if safety dependant :		N/A
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use, on apparatus or in instruction manual :	2000mA	P
	Measured current or power consumption :	See table 7.1 for details	P
	Deviation % (max 10%) :	<10%	P
	h) Rated current or power consumption for apparatus intended for connection to an a.c. mains supply :		N/A
	Measured current or power consumption :		N/A
	Measured current or power consumption for Television set :		N/A
	Deviation % (max 10%) :		N/A

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict

	Symbols explained in the user manual		N/A
5.3	Terminals		N/A
	a) Earth terminal	Class III equipment	N/A
	b) Hazardous live terminals		N/A
	c) Markings on supply output terminals	See copy of marking plate	P
5.4	Caution marking		N/A
	a) Use of triangle with exclamation mark	Provided in circuit diagram	N/A
	b) Marking on loudspeaker grille, IEC 60417-5036		N/A
	c) User-replaceable coin / button cell battery marking		N/A
5.5	Instructions		P
5.5.1	Safety relevant information	Provided	P
5.5.2	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	No directly connected to mains and internal voltage less than 35Vpeak or d.c.	N/A
	b) Hazardous live terminals, instructions for wiring		N/A
	c) Instructions for replacing lithium battery		N/A
	d) Class I earth connection warning		N/A
	e) Instructions for multimedia system connection		P
	f) Special stability warning for attachment of the apparatus to the floor/wall		N/A
	g) Warning: battery exposure to heat		N/A
	h) Warning: protective film on CRT face		N/A
	i) Warning: Non-floor standing TV >7kg		N/A
	j) Warning: User replaceable coin / button cell battery		N/A
5.5.3	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	Not directly connected to mains	N/A
	c) Instructions for permanently connected equipment		N/A
	Marking, signal lamps or similar for completely disconnection from the mains		N/A

6	HAZARDOUS RADIATION	P
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h) No Ionizing radiation	N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	European Council Directive 96/29/Euratom of 13 May 1996 10cm from outer surface of apparatus <1µSv/h (0,1mR/h)		N
6.2	Laser radiation, emission limits to IEC 60825-1		N
	Emission limits under fault conditions		N
7	HEATING UNDER NORMAL OPERATING CONDITIONS		P
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(See appended table 7.1)	P
7.1.1	Temperature rise of accessible parts	(See appended table 7.1)	P
7.1.2	Temperature rise of parts providing electrical insulation	(See appended table 7.1)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier		N
7.1.4	Temperature rise of windings	(See appended table 7.1)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(See appended table 7.1)	P
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C		N
8	CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK		P
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Considered.	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No such parts	N
8.3	Insulation of hazardous live parts not provided by hygroscopic materials.		N
8.4	No risk of electric shock following the removal of a cover which can be removed by hand		N
8.5	Class I apparatus	Class III construction	N
	Basic insulation between hazardous live parts and earthed accessible parts		N
	Resistors bridging basic insulation complying with 14.1 a)		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
8.6	Class II apparatus and Class II constructions within Class I equipment	Class III construction.	N
	Reinforced or double insulation between hazardous live parts and accessible parts		N
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3		N
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)	No such capacitor provided.	N
	Reinforced or double insulation being bridged with a capacitors in series complying with 14.2.1 a)		N
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1b)		N
	Basic insulation bridged by components complying with 14.3.4.3		N
8.7	This clause is void		N
8.8	Basic or supplementary insulation $\geq 0.4\text{mm}$		N
	Reinforced insulation $\geq 0.4\text{mm}$		N
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)		N
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N
	Basic or supplementary insulation, three layers any two of which meet 10.3		N
	Reinforced insulation, two layers each of which meet 10.3		N
	Reinforced insulation, three layers any two which meet 10.3		N
8.9	Adequate insulation between internal hazardous live conductors and accessible parts		N
	Adequate insulation between internal wiring hazardous live parts and conductors connected to accessible parts		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
8.10	Double insulation between conductors connected to the mains and accessible parts. Double insulation between internal hazardous live parts and conductors connected to accessible parts.		N
8.11	Detaching of wires	No wire could become detachable.	N
	No undue reduction of creepage of clearance distances if wires become detached		N
	Vibration test carried out		N
8.12	This clause is void		N
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20N for 10s)	No such parts	N
8.14	Adequate fastening of covers (pull test 50N, for 10 s)		P
8.15	No risk of damage to the insulation of internal wiring due to not hot parts or sharp edges	Internal wires soldered to PCB and fixed by fixing glue, no hot parts or sharp parts can be touched when applied 3N, 2N force individually on the internal wires and or their surroundings.	P
8.16	Only special supply equipment can be used		N
8.17	Insulated winding wire without additional interleaved insulation		N
8.18	Endurance test as required by 8.17		N
8.19	Disconnection from the mains		P
8.19.1	Disconnect device		N
	All-pole switch or circuit breaker with >3mm contact separation		N
8.19.2	Mains switch ON indication		N
8.20	Switch not fitted in the mains cord		N
8.21	Bridging components comply with clause 14		N
8.22	Non-separable thin sheet material		N
9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		P
9.1	Testing on outside		--

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation		N
9.1.1.1	a) Open circuit voltages		N
	b) Touch current measured from terminal devices using the network in annex D		N
	c) Discharge not exceeding 45 μ C		N
	d) Energy of discharge not exceeding 350 mJ		--
9.1.1.2	Test with test finger and test probe		N
9.1.2	No hazardous live shafts of knobs, handlers or levers	No such parts	N
9.1.3	Ventilation holes tested by means of 4 mm x 100 mm test pin		N
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61 032		N
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		N
9.1.5	Pre-set controls tested with 2 mm x 100 mm test pin (10 N); test probe C of IEC 61 032		N
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s		N
	If C is not greater than 0.1 μ F no test needed		--
9.1.7	a) Enclosure sufficiently resistant to external force	Hazardous live parts not accessible during the tests and no damage after the tests.	N
	Test probe 11 of IEC 61 032 for 10 s (50N)	50 N force applied to rear enclosure, no hazard.	N
	Test hook of fig.4 for 10s (20N)	20 N force directed outwards, is applied for 10 s at all points where this is possible, no hazard.	N
	30 mm diameter test tool for 5 s (100 or 250N)	This unit not floor-standing apparatus.	N
9.2	No hazard after removing a cover by hand		N
10	INSULATION REQUIREMENTS		P

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
10.1	Insulation resistance (MΩ) at least a 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation		N
10.2	Humidity treatment 48 h of 120 h	At 93% RH, 45°C, 120 hours.	P
10.3	Insulation material of live parts be adequate to resistant to electric shock		N
	Insulation Resistance and dielectric strength across basic or supplementary insulation (Class I)	Class III equipment	N
	Insulation resistance and dielectric strength across reinforced insulation (Class II)	Class III equipment	N

11	FAULT CONDITIONS		P
11.1	No shock hazard under fault conditions	The voltage of the audio connectors did not exceed the specified voltage. (see appended table)	P
11.2	Heating under fault condition	During fault conditions, no fire propagated beyond the equipment.	P
	No hazard from softening solder		P
	Flames extinguish within 10 seconds	No flames or danger of fire.	P
	Soldered terminations not used as protective mechanism	Solder not used as protective mechanism.	P
11.2.1	Measurement of temperature rises	(See appended table)	P
11.2.2	Temperature rise of accessible parts	(See appended table)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation.	(See appended table)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min		N
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm ²		N
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm ² for a maximum of 5 min		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict

	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthings maintained		N
11.2.4	Temperature rise of parts acting as a support or a mechanical barrier	No such parts	N
11.2.5	Temperature rise of windings	(See appended table)	P
11.2.6	Temperature rise of other parts not subject to the limits of 11.2.1 to 11.2.5	(See appended table)	P
11.2.7	Printed boards		P
	Temperature rise does not exceed the limits of table 3 or exceed the limits of table 3 by max. 100 K for max. 5 min	(see appended table 11)	P
	a) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm ²		N/A
	b) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 up to 300 K for an area not greater than 2 cm ² for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N/A
	Class I protective earthing maintained		N/A
11.2.8	Temperature rise of parts not subject to the limits of 11.2.2 to 11.2.7 shall not exceed the limits in table 3, item e), "Fault conditions".		N/A

12	MECHANICAL STRENGTH		P
12.1.1	Bump test where mass >7 kg		N
12.1.2	Vibration test		P
12.1.3	Impact hammer test	3 times, 0.5J performed, the apparatus withstood the dielectric strength test as specified in 10.3 and no damage observed.	P
	Steel ball test		N
12.1.4	Drop test for portable apparatus having where mass < 7 kg		P
12.1.5	Thermoplastic enclosures strain relief test		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
12.2	Fixing of knobs, push buttons, keys and levers		N
12.3	Remote controls with hazardous live parts	Remote control has no hazardous live part.	N
12.4	Drawers (pull test 50 N, 10 s)	No such part	N
12.5	Antenna coaxial sockets providing isolation		N
12.6	Telescoping or rod antennas construction	No such part	N
12.6.1	Telescoping or rod antennas securement		N
13	CLEARANCES AND CREEPAGE DISTANCES		N
13.1	Clearances in accordance with 13.3	Class III equipment	N
	Creepage distances in accordance with 13.4		N
13.2	Determination of operating voltage		N
13.3	Clearances		N
13.3.1	General		N
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9		N
13.3.3	Circuits not conductively connected to the mains comply with table 10		N
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances		N
	Creepage distances greater than table 11 minima		N
13.5	Printed boards		N
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10		N
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	No such construction.	N
	Conductive parts along reliably cemented joints comply with 8.8		N
	Temperature cycle test and dielectric strength test		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict

13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12	No such construction.	N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	No such parts.	N

14	COMPONENTS		N
14.1	Resistors		---
	a) Resistors between hazardous live parts and accessible metal parts	No such resistors.	N
	b) Resistors, other than between hazardous live parts and accessible parts		N
	b) Resistors separately approved		N
14.2	Capacitors and RC-units		N
	Capacitors separately approved		--
14.2.1	Y capacitors tested to IEC 60384-14, 2nd edition		N
14.2.2	X capacitors tested to IEC 60384-14, 2nd edition		N
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2		N
14.2.5	Capacitors with volume exceeding 1750 mm ³ , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better		N
	Capacitors with volume exceeding 1750 mm ³ , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60384-1, 4.38 category B or better		N
	Shielded by a barrier acc. to 20.1.4/ table 21 or metal		N
14.3	Inductors and windings		N
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N
14.3.1	Transformers and inductors marked with manufacturer's name and type		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	Transformers and inductors separately approved		N
14.3.2	General		N
	Isolating transformers shall comply with 14.3.3 and 14.3.4.1 or 14.3.4.2 and 14.3.5.1 or 14.3.5.2		N
	Separating transformers shall comply with 14.3.3 and 14.3.4.03 and 14.3.5.1 or 14.3.5.2		N
14.3.3	Constructional requirements		N
14.3.3.1	Clearances and creepage distances of all windings shall comply with the requirement of clause 13.		N
14.3.3.2	Transformers meet the constructional requirements		N
14.3.4	Separation between windings		N
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)		N
	Coil formers and partition walls > 0.4 mm		N
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all conditions of 14.3.4.2 are met	No such component.	N
14.3.4.3	Separating transformers with at least basic insulation	No such component.	N
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N
	Coil formers and partition walls > 0,4 mm		N
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal		N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
14.4	High voltage components	No such parts	N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	High-voltage components and assemblies: U > 4 kV (peak) separately approved		--
	Component meets category V -1 of IEC 60707		--
14.4.1	High voltage transformers and multipliers tested as part of the submission		N
	High voltage assemblies and other parts tested as part of the submission		N
14.5	Protective devices		N
	Protective devices used within their ratings		N
	External clearance and creepage distances appropriate for the voltage across the device when opened		N
14.5.1.1	a) Thermal cut-outs separately approved	No thermal cut-out used.	N
	b) Thermal cut-outs tested as part of the submission		N
14.5.1.2	a) Thermal links separately approved		N
	b) Thermal links tested as part of the submission		N
14.5.1.3	Thermal devices re-settable by soldering	No such components.	N
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127		N
14.5.2.2	Correct marking of fuse-links adjacent to holder		N
14.5.2.3	Not possible to connect fuses in parallel	Not used.	N
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool		N
14.5.3	PTC-S thermistors comply with IEC 60738		N
	PTC-S devices (15 W) category V -1 or better	Ditto.	--
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked	Not such protectors used.	N
14.6	Switches		N
14.6.1a	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 and Make and break speed independent of speed of actuation V-0 compliance with annex G, G.1.1		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
14.6.1b	Tested in the apparatus:		N
	Switch controlling > 0.2A with open contact voltage >35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1		N
	Switch controlling > 0.2A with open contact voltage <35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1		N
	Switch controlling < 0.2A with open contact voltage >35 V (peak)/24 V dc complying with 14.6.4 and V-0 in annex G, G.1.1		N
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1		N
	Socket outlet current marking correct		N
14.7	Safety interlocks	No safety interlocks used.	N
	Safety interlocks to 2.8 of IEC 60 950		N
14.8	Voltage setting devices	Apparatus is designed for rated rating, no voltage setting device used.	N
	Voltage setting device not likely to be changed accidentally		N
14.9	Motors	No motors used.	N
14.9.1	Endurance test on motors		N
	Motor start test		N
	Dielectric strength test		N
14.9.2	Not adversely affected by oil or grease etc.		N
14.9.3	Protection against moving parts		N
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet Cl. B.8, B.9 and B.10 of IEC 60 950, Annex B		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
14.10	Batteries		N
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N
14.10.2	No possibility of recharging non-rechargeable batteries		N
14.10.3	Recharging currents and times within manufacturers limits		N
	Lithium batteries discharge and reverse currents within the manufacturers limits		N
14.10.4	Battery mould stress relief		N
14.10.5	Battery drop test		N
14.11	Optocouplers		N
	Optocouplers comply with Cl. 8		N
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		N
14.12	Surge suppression varistors	No such component	N
	Comply with IEC 61051-2		N
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N
15	TERMINALS		P
15.1.1	After the second paragraph, add the following: Plugs for the connection of apparatus to mains-powered socket-outlets shall comply with IEC 3112 or IEC 3123. Apparatus with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with IEC 3112, shall comply with the requirements of IEC 3112 for equipment with integral pins for insertion into socket-outlets.		P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
15.1.2	Connectors for antenna, earth, audio, video or data		P
	No risk of insertion in mains socket-outlets	No mains socket-outlets provided.	N
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		N
15.1.3	Output terminals of AC adaptors or similar devices not compatible with household mains socket-outlets	This unit is not AC adaptor or similar devices.	N
15.2	Provision for protective earthing		N
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Class III appliance	N
	Protective earth conductors correctly coloured		N
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input		N
	Protective earth terminal resistant to corrosion		N
	Earth resistance test: $< 0,1 \Omega$ at 25 A :		N
15.3	Terminals for external flexible cords and for permanent connection to the mains supply	Apparatus is not designed for permanent connection.	N
15.3.1	Adequate terminals for connection of permanent wiring		N
15.3.2	Reliable connection of non-detachable cords		N
	not soldered to conductors of a printed circuit board		N
	adequate clearances and creepage distances between connections should a wire break away		N
	wire secured by additional means to the conductor		N
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		P
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N
	Clamping of conductor and insulation if not soldered or held by screws		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
15.3.5	In Table 15, in the second and third rows of the first column replace '6' with '7.5'.		P
15.3.6	Terminals to 15.3.3 have sizes required by Table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened or loosened		N
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		P
15.3.9	Termination of non-detachable cords: wires terminated near to each other		P
	Terminals located and shielded: test with 8 mm strand		P
15.4	Devices forming a part of the mains plug	DC inlet as disconnect device	P
15.4.1	No undue strain on mains socket-outlets		N
15.4.2	Device complies with standard for dimensions of mains plugs		P
15.4.3	Device has adequate mechanical strength (tests a,b,c)		P
16	EXTERNAL FLEXIBLE CORDS		N
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords	No external flexible cords	N
	Non-detachable cords for Class I have green/yellow core for protective earth		N
16.2	In Table 18, in the second and third rows of the first column replace '6' with '7.5'.	No power cord.	N
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N
16.5	Adequate strain relief on external flexible cords		N
	Not possible to push cord back into equipment		N
	Strain relief device unlikely to damage flexible cord		N
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		N
16.7	Transportable apparatus fitted with detachable cord set with appliance inlet to IEC 60 320-1	Not a transportable apparatus.	N
	Transportable apparatus fitted with detachable cord sets or with means of stowage to protect the cord		N
17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		P
17.1	Torque test to Table 20		P
	screws into metal: 5 times		N
	screws into non-metallic material: 10 times		P
17.2	Correct introduction into female threads in non-metallic material		N
17.3	Cover fixing screws: captive		N
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter		N
17.4	No loosening of conductive parts carrying a current > 0,2 A		N
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N
17.8	Fixing devices for detachable legs or stands provided		N
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		P
18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N
	Picture tube separately approved to IEC 61965:	No CRT	N
	Picture tube separately approved to 18.1		N
18.1	Picture tubes > 16 cm intrinsically protected		N
	Non-intrinsically protected tubes > 16 cm used with protective screen		N
	Protective film as part of implosion protection: edges covered by enclosure		N
18.2	Intrinsically protected tubes: tests on 12 samples		N
18.2.1	Samples subject to ageing: 6		N
18.2.2	Samples subject to implosion test: 6		N
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N
18.3	Non-intrinsically protected tubes tested to 18.3		N
19	STABILITY AND MECHANICAL HAZARDS		P
	Mass of the equipment exceeding 7kg		N
	Apparatus intended to be fastened in place – suitable instructions		N
19.1	Test on a plane, inclined at 10° to the horizontal	No hazard	N
19.2	100N applied vertically downwards		N
19.3	100N force, or 13% of weight, applied horizontally to point of least stability.		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
19.4	Smooth edges and corners	Edges and corners are smooth.	P
19.5	Glass surfaces with an area exceeding 0,1 m ² or maximum dimension > 450 mm, pass the test of 19.5.1		N
19.6	Wall or ceiling mountings adequate	The unit not intended for wall or ceiling mounting.	N

20	RESISTANCE TO FIRE		P
20.1	Electrical components and mechanical parts		P
	a) Exemption for components contained in an enclosure of material FV 0 to IEC 60707 with openings not exceeding 1 mm in width		P
	b) Exemption for small components as defined in 20.1	V-0 PCB.	P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4		P
20.1.2	Insulation of internal wiring working at voltages > 4 Kv or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, not contributing to the spread of fire		N
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC60707, unless used in a fire enclosure		N
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707	V-0	P
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21		N
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	Apparatus with voltages >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure.		N
20.2	Fire enclosure		P
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1		P
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled	No internal fire enclosure	N
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure	Ditto.	N
A	ANNEX A: ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER		N
A.5.1	Marked with IPX4 (IEC 60 529), 5.4.1 a) does not apply		N
A.10.2.1	Enclosure provides protection against splashing water		N
A.10.2.2	Humidity treatment carried out for 7 days		N
B	ANNEX B: APPARATUS TO BE CONNECTED TO THE TEL ECOMMUNICATION NETWORKS		N
	Complies with IEC 62151 clause 1		N
	Complies with IEC 62151 clause 2		N
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard		N
	Complies with IEC 62151 clause 6		N
	Complies with IEC 62151 clause 7		N
	Complies with IEC 62151 annex A, B and C		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict

	After the heading add: For Australia only, this Annex is replaced by the requirements of the Telecommunications Labelling Notice issued the Telecommunications Act. NOTE-The Telecommunications Act is administered by the Australian Communications Authority		N
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L	APPENDIX L, ADDITIONAL REQUIREMENTS FOR ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC PURPOSES.		N
L 5.4	Marking and Instructions		N
L 9.1.1	Terminals to connection to synchroniser not hazardous live		N
L 7.1.5 & L11.2.6	Lithium batteries meet permissible temp rise in Table 3 , unless comply with 6.3.2 of IEC 60086-4		N
L14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N

ZB	ANNEX ZB TO IEC 60065, SPECIAL NATIONAL CONDITIONS		N
2.6.1	DK: certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets		N
13.3.1	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N
15.1.1	DK: mains cord for single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to Heavy Current Regulations Section 107-2-D1		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
	DK: Class I equipment with socket-outlets with earthing contact, or which are intended to be used in locations where protection against indirect contact is required shall be provided with a plug in compliance with Standard Sheet DK 2-1a		N
	DK: socket-outlets for providing power to Class II equipment with a rated current of 2,5 A shall have dimensions according to the drawing on page 179 of EN 60 065:2002 other dimensions shall be to IEC 60 083 Standard Sheet C 1a for portable socket-outlets		N
	DK: mains socket-outlets with earthing contact shall comply with Heavy Current Regulations Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a		N
	GB: equipment fitted with a flexible cable or cord provided with a 13A BS 1363 plug as in Statutory Instrument 1768:94		N
	IE: equipment fitted with a flexible cable or cord provided with a 13 A plug in accordance with Statutory Instrument 525:97		N
	NO: mains socket-outlets on Class II equipment meet CEE Publication 7 with the following amendments:		N
	- dimensions 2,5 A, 250 V socket-outlets shall comply with Standard Sheet I page 180 of EN 60 065:2002		N
	- mechanical strength 2,5 A, 250 V socket-outlets tested as specified in EN 60 065, 12.1.3		N
	- protecting rim also tested		N
	NO: method b) of 8.1 is not permitted. Double or reinforced insulation is required between parts connected to the mains and parts connected to the public telecommunications network		N

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IEC 60065			
Clause	Requirement Test	Result - Remark	Verdict
J.2	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N
ZC	ANNEX ZC TO IEC 60065, A-DEVIATIONS		P
5	DE: additional markings required in German language:		N
	- cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)		P
	- TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage less than 20 kV		N
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N
	IT: user instructions in Italian language including a conformity declaration		N
	IT: certification number on the back cover		N
14.1	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N

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Tables

7.1	TABLE: Temperature rise measurement				P
	Ambient (°C)..... :		See below		P
	Loudspeaker impedance (Ω)..... :		--		--
Operation conditions					
Un(V)	In(A)	Pn(W)	Pout(W)	Condition	
5V $\overline{\text{---}}$	1.28	6.4	--	Equipment normal working	
	Loudspeaker impedance (Ω)		--		--
	Several loudspeaker systems		--		--
	Marking of loudspeaker terminals		--		--
	Test Voltage				--
Monitored point:			dT (K)		Limit dT (K)
			Test 1 5V	Test 2	
PCB near U1			19.3	--	85
PCB near U2			18.8	--	85
PCB near IC1			20.4	--	85
PCB near Q1			19.6	--	85
PCB near IC2			20.2	--	85
L1			18.3	--	85
L4			18.7	--	85
C2			11.9	--	60
C6			13.4	--	60
Internal wire			8.5	--	35
Plastic enclosure outside			4.8	--	50
Plastic enclosure inside			7.7	--	70
Ambient			45.1°C	--	--
	Winding temperature rise measurements				N
	Ambient temperature t1 (°C)			--	--
	Ambient temperature t2 (°C)			--	--
Temperature rise dT of winding		R1(Ω)	R2(Ω)	dT(K)	Limit dT (K)
--		--	--	--	--
Note (s): the max. temperature 45°C declared by the client. The temperature rise limit is calculated based on 45°C.					

7.2	TABLE: Softening temperature of thermoplastics			N
Temperature T of part	T – normal conditions (°C)	T – fault conditions (°C)	T softening (°C)	
--	--	--	--	
Note: The test have been performed on each bobbin at a temperature of the penetrations are as following: Transformer: < 0.1mm				

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Tables

9.1.1	TABLE: Electric shock hazard under normal condition					N
Touch current measured between:	Condition	U1 (V)	U1 (Vpk) limit	U2 (V)	U2 (Vpk) limit	
--	--	--	--	--	--	
Open circuit voltage						
Location	Vpeak	Vrms.	Comments			
--	--	--	--			
Note: --						

9.1.6	TABLE: Discharge test			N
Condition	After 2 S	U→0V t (ms)	Comments	
--	--	--	--	
Note(S):--				

10.2	TABLE: Humidity test				P
Test condition:	Temperature	Relative Humidity	Duration	Breakdown (Y/N)	
	45°C	93%	120hours	N	
Remark: After humidity test, electric strength test specified in clause 10.3 should be applied.					

10.3 a	TABLE: Insulation resistance measurements			N
Insulation resistance R between:			R (MΩ)	Required R (MΩ)
--			--	--

10.3 b	TABLE: Electric strength measurements		N
Test voltage applied between:		Test voltage (Vac)	Breakdown
--		--	--

11.1	TABLE: Electric shock hazard under abnormal condition					N
Touch current measured between:	Condition	U1 (V)	U1 (Vpk) limit	U2 (V)	U2 (Vpk) limit	
--	--	--	--	--	--	
Note: --						

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Tables

11.2	TABLE: Fault condition Tests						P
	Voltage (V) 1.1 times rated Voltage				See below		--
	Ambient temperature (°C)				25.2		--
Component No.	Fault	Test voltage (V)	Test time	Fuse No.	Fuse current (A)	Result	
C1	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
R2	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
Q1	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
Q3	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
U1Pin(1-5)	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
U1Pin(2-4)	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
Output1	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
Output1	O-L	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard PCB near U1: 68.9°C PCB near U2: 69.1°C PCB near IC1: 70.5°C Ambient: 25.1°C	
Output2	S-C	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard	
Output2	O-L	5V $\overline{=}$	10mins	--	--	Unit was protected, No hazard PCB near U1: 68.6°C PCB near U2: 69.9°C PCB near IC1: 69.7°C Ambient: 25.1°C	
Note(s): 1) After each of above test, EUT can pass the dielectric strength test which specified in clause 10.3 2) Supplementary information: o-c: open circuit, s-c: short circuit, o-l: overload.							

12.1.1	TABLE: Bump test		N
Fall times	Height	Result	
--	--	--	

12.1.2	TABLE: Vibration test				P
Duration	Amplitude	Frequency	Sweep rate	Result	
30min	0.35	10Hz...50Hz...10Hz	approximately 1 octave/min.	No damage	

12.1.3	TABLE : Impact test		P
Force (J)	External surface	Result	
0.5	Top	No electric breakdown after test	

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Tables

0.5	Bottom	No electric breakdown after test
0.5	Side	No electric breakdown after test
2	Top	No electric breakdown after test
2	Bottom	No electric breakdown after test
2	Side	No electric breakdown after test

12.1.4	TABLE: Drop test		P
Height	horizontal surface	Result	
1m	At least 13 mm thickness for the hard wood	No break	

12.1.5	TABLE: Stress relief test		N
Temperature(°C)	Duration	Result	
--	--	--	

13.1	TABLE: Clearance and creepage distance measurements					N
Clearance (cl) and creepage distance (cr) at/of/between	Up (V)	U r.m.s. (V)	Required cl (mm)	Cl (mm)	Required cr (mm)	Cr (mm)
--	--	--	--	--	--	--
Test condition :--						

13.2	TABLE :Working Voltage measurement			N
Location	Peak Voltage (V)	RMS Voltage (V)	Comments	
--	--	--	--	

14	TABLE: List of critical components				P
Object/part No.	Manufacturer/trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Enclosure	Chang Chun Sb(Changshu) Co., Ltd.	EME-5051	V-0, 115°C	UL 94, UL 746	UL E223871
Internal wire	Dongguan Zhihe Electrical Cable Tech Co., Ltd.	1007	VW-1, 300 V, Min.24AWG, 80°C	UL 758	UL E258239
PCB	Kingboard Laminates (Macao Commercial Offshore) Ltd.	I80-LQ-3210BT	V-0, 130°C	UL 94, UL 796	UL E123995
Alternative	Interchangeable	Interchangeable	Min. thickness: 1.0mm, V-0, 130°C	UL 94, UL 796	UL

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Tables

14.10	TABLE: Battery									N
The test of 14.10 are applicable only when appropriate battery data is not available							--		N	
Is it possible to install the battery in a reverse polarity position							--		N	
--	No-rechargeable battery				Rechargeable battery					
--	Discharge		Un-intentional charging		Charging		Discharging		Reversed charging	
--	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--	--
Test result:										Verdict
- Chemical leaks						No chemical leaks				N
- Explosion of the battery						No explosion of the battery				N
- Emission of flame or expulsion of molten metal						No emission of flame or expulsion of molten metal				N
- Electric strength tests of equipment after completion tests						No insulation breakdown				N
Supplementary information:										

14.10.4	TABLE: Battery mould stress relief										P
Temperature (°C)			Duration			Result					
70			7h			Electrolyte of battery has been released.					

14.10.5	TABLE: Battery drop test										P
Height		Horizontal surface						Result			
1m		The horizontal surface consists of hardwood at least 13 mm thick, mounted on two layers of plywood each 19 mm to 20 mm thick, all supported on a concrete or equivalent non-resilient floor						Electrolyte of battery has been released.			

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Tables

16.5	TABLE: Stress relief test			N
Pull force	Duration	Times	Displaced ($\leq 2\text{mm}$)	
--	--	--	--	

17.1	TABLE: Screw torque test			P
Diameter of screw (mm)	Torque (Nm)	Times	Result	
2.93	0.5	10	No evidence of damage or deterioration to the screw	



Attachment No. 1

ATTACHMENT TO TEST REPORT IEC 60065 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio, video and similar electronic apparatus – Safety requirements)	
Differences according to	EN 60065:2014
Attachment Form No.	EU_GD_IEC60065L
Attachment Originator	Intertek Semko AB
Master Attachment	Date 2015-03
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	CENELEC COMMON MODIFICATIONS (EN)			
General	1.1.3 Note 2	5.4 Note	5.5.2 Note 1 and Note 2	P
	13.3.1 Note 4	14.1 Note 1 and Note 2	15.1.1 Note 1 and Note 2	
	15.2 Note 2	16.1 Note 2	16.2 Note	
	20 Note	J.3 Note 1 and Table J.1 Note 2		
1.2	Normative references			P
	Add the following: EN 71-1, <i>Safety of toys – Part 1: Mechanical and physical properties</i> EN 50332-1, <i>Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 1: General method for "one package equipment"</i> EN 50332-2, <i>Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design</i>			P

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Attachment No. 1

3General	requirements	P
3.Z1	<p>Protective devices</p> <p>To protect against excessive current, short-circuits and earth faults in MAINS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of Clause 11 shall be included as parts of the equipment;</p> <p>b) for components in series or parallel with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for equipment supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS, to rely on dedicated over current and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for apparatus not supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	P
4	General test conditions	N/A
4.1.1	<p>Replace the text of the note by:</p> <p>NOTE For ROUTINE TEST, reference is made to EN 50514:2008.</p>	N/A



Attachment No. 1

6	Hazardous radiations		N/A
6.1	<p>Replace the entire subclause by the following: Apparatus including a potential source of ionizing radiation shall be so constructed that personal protection against ionizing radiation is provided under normal operating conditions and under fault conditions. <i>Compliance is checked by measurement under the following conditions:</i> <i>In addition to the normal operating conditions, all controls adjustable from the outside BY HAND, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i> NOTE 1 Soldered joints and paint lockings are examples of adequate locking. <i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus</i> <i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i> <i>The dose-rate shall not exceed 1 µSv/h (0,1 mR/h) taking account of the background level.</i> NOTE 2 These values appear in Council Directive 96/29/Euratom of 13 May 1996. <i>A picture is considered to be intelligible if the following conditions are met:</i> <i>- a scanning amplitude of at least 70 % of the usable screen width;</i> <i>- a minimum luminance of 50 cd/m² with locked blank raster provided by a test generator;</i> <i>- a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;</i> <i>- not more than one flashover per 5 min.</i></p>		N/A
16	External flexible cords		N/A
16.1	<p>Add the following note after the first paragraph: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A
Z1	Protection against excessive sound pressure from personal music players	N/A	Z1



Attachment No. 1

Z1.1	<p>General</p> <p>This subclause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear.</p> <p>Requirements for earphones and headphones intended for use with personal music players are also covered.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none">– is designed to allow the user to listen to recorded or broadcast sound or video; and– uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and– is body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around while in use. <p>EXAMPLES CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player shall comply with the requirements of this subclause.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom terminal equipment is referenced to ITU-T Recommendation P.360.</p> <p>The requirements in this subclause are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none">– professional equipment; <p>NOTE 2 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none">– hearing aid equipment and other devices for assistive listening;– the following types of analogue personal music players:<ul style="list-style-type: none">• long distance radio receiver (for example, a multiband radio receiver or a world band radio receiver, an AM radio receiver) and• cassette player/recorder; <p>NOTE 3 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <ul style="list-style-type: none">– player while connected to an external amplifier that does not allow the user to walk around while in use. <p>For equipment clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A
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Attachment No. 1

Z1.2	<p>Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none">– equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dB(A) measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and– personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this subclause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Z1.5 and Annex ZE.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none">a) protect the user from unintentional acoustic outputs exceeding those mentioned above; andb) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; andc) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <ul style="list-style-type: none">d) have a warning as specified in Z1.3; ande) not exceed the following: <ul style="list-style-type: none">1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dB(A) measured while playing the fixed “programme simulation noise” described in EN 50332-1; and2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
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Attachment No. 1

	<p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the basic limit of 85 dB(A). In this case, T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dB(A).</p> <p>NOTE 5 For example, if the player is set with the programme simulation noise to 85 dB(A), but the average music level of the song is only 65 dB(A), there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB(A).</p>		N/A
Z1.3	<p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> – the symbol of Figure Z1 with a minimum height of 5 mm; and – the following wording, or similar: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>To prevent possible hearing damage, do not listen at high volume levels for long periods.</p> </div> <div style="text-align: center;">  </div> <p>Figure Z1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N/A



Attachment No. 1

Z1.4	Requirements for listening devices (headphones, earphones, etc.)	N/A
Z1.4.1	Corded passive listening devices with analogue input With 94 dB(A) sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate including any available setting (for example built-in volume level control, an additional sound feature like equalization, etc.). NOTE The values of 94 dB(A) – 75 mV correspond with 85 dB(A) – 27 mV and 100 dB(A) – 150 mV.	N/A
Z1.4.3	Cordless listening devices In wireless mode: – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above-mentioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dB(A).	N/A
Z1.5	Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for cordless equipment provided without listening device should be defined.	N/A

	ANNEXES	N/A
Annex B	Replace the text of Note 1 by the following: In the CENELEC countries listed in IEC 62151, special national conditions apply.	N/A
Annex N	After the note in N.1, add the following: For ROUTINE TEST, reference is made to EN 50514:2008.	N/A

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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Attachment No. 1

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)	N/A
2.6.1	Denmark The following is added: Certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets <i>Justification:</i> Heavy Current Regulations, Section 6c	N/A
3.Z1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	N/A
5.4	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: CLASS I apparatus which is intended for connection to the building installation wiring via a plug or an appliance coupler, or both and in addition is intended for connection to other apparatus or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network TERMINALS and ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an earthed MAINS socket-outlet. The marking text in the applicable countries shall be as follows: In Denmark : "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord." In Finland : "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway : "Apparatet må tilkoples jordet stikkontakt" In Sweden : "Apparaten skall anslutas till jordat uttag"	N/A



Attachment No. 1

5.5.2	<p>Norway and Sweden</p> <p>Add to the end of 5.5.2 (after the compliance statement) the following:</p> <p>The screen of the coaxial cable of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a coaxial cable based television distribution system.</p> <p>It is however accepted to provide the insulation external to the apparatus by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the apparatus is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the MAINS connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for installations of CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare.</p> <p>For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand.</p> <p>För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N/A
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13.3.1	<p>Norway</p> <p>Add to the second paragraph the following: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault.</p> <p><i>Justification:</i> Based on a use in Norway of an IT power distribution system where the neutral is not provided</p>		N/A
15.1.1	<p>Denmark</p> <p>To the first paragraph the following is added: In Denmark, supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</p> <p>Appliances of Class I provided with socket-outlets with earth contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug which assure earth continuity with the socket-outlet in accordance with DS 60884-2-D1.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-1.</p> <p>To the second paragraph the following is added: Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>To the third paragraph the following is added: Mains socket-outlets with earthing contact shall be in compliance with DS 60884-2-D1, Standard sheet DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A
15.1.1	<p>Ireland</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997.</p> <p><i>Justification:</i> SI 525: 1997</p>		N/A

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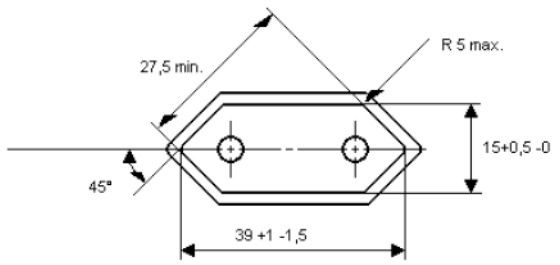
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15.1.1	<p>Norway</p> <p>Mains socket-outlets mounted on Class II apparatus shall comply with the specifications given in CEE Publ. 7 as far as applicable, with the following amendments:</p> <p>§ 8 Dimensions</p> <p>a) 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I.</p> <div data-bbox="416 577 1010 1084"> <p>STANDARD SHEET I</p> <p>2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II</p>  <p>Dimensions in mm</p> <p>Other dimensions according to CEE Publication 7 Standard Sheet I</p> <p>"Portable Single-Way Socket-Outlets".</p> </div> <p>§ 24 Mechanical strength</p> <p>a) 2,5 A, 250 V socket-outlets for Class II electronic apparatus are tested as specified in EN 60065:2014, 12.1.3. Also the protecting rim shall be tested.</p> <p><i>Justification:</i></p> <p>Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).</p>		N/A
15.1.1	<p>United Kingdom</p> <p>Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug shall be fitted with a "standard plug" in accordance with Statutory Instrument 1768: 1994: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p> <p><i>Justification:</i></p> <p>SI 1768: 1994</p>	Should be evaluated during the national approval	N/A



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Annex B	<p>Finland, Norway and Sweden</p> <p>All sub clauses given below are sub clauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151).</p> <p>Subclause 4.1.1 (corrigendum 2):</p> <p>Add after the first paragraph:</p> <p>NOTE In Finland, Norway and Sweden, CLASS I equipment which is intended for connection to the building installation via a non-industrial plug or a non-industrial appliance coupler, or both and in addition is intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and ACCESSIBLE parts, has a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:</p> <p>In Finland: " Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan "</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>Subclause 4.1.4 (corrigendum 1)</p> <p>Add at the end of the subclause:</p> <p>NOTE In Norway, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p>Subclause 4.2.1.2 (corrigendum 1)</p> <p>Add at the end of the subclause:</p> <p>NOTE 3 In Norway, for requirements see 5.3.1, note 1.</p> <p>Subclause 4.2.1.3 (corrigendum 2)</p> <p>Add at the end of the subclause:</p> <p>NOTE In Norway, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p>Subclause 4.2.1.4 (corrigendum 1)</p> <p>Number the existing note as NOTE 1 and add at the end of the subclause the following NOTE 2:</p> <p>NOTE 2 In Norway, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p>Subclause 5.3.1 (corrigendum 1)</p> <p>Add after the first test specifications paragraph:</p> <p>NOTE 1 In Finland, Norway and Sweden, there are additional requirements for the insulation.</p>		N/A
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	<p>Renumber the existing note as NOTE 2.</p> <p>For additional requirements for the insulation in Finland, Norway and Sweden in NOTE 1 the following text is added between the first and the second paragraph (this text is identical to the corresponding EN 60950-1:2001):</p> <p>NOTE 1 In Finland, Norway and Sweden, if this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or</p> <ul style="list-style-type: none">• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in the accordance with the compliance clause below and in addition:</p> <ul style="list-style-type: none">• passes the test and inspection criteria of 13.6 with an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV (for performance of the test see N.2.1). <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none">• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 62151:2000, 6.2.1;• the additional testing shall be performed on all the test specimens as described in EN 132400;• the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 in the sequence of tests as described in EN 132400. <p>Subclause 5.3.2 (corrigendum 1)</p> <p>Add after the fourth dash:</p> <p>NOTE In Finland, Norway and Sweden, exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.</p>		N/A
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J.2	<p>Norway</p> <p>After Table J.1 the following is added: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault.</p> <p><i>Justification:</i> Based on a use in Norway of an IT power distribution system where the neutral is not provided</p>		N/A
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Attachment No. 1

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)	
5.1	<p>Italy</p> <p>The following requirements shall be fulfilled:</p> <ul style="list-style-type: none">- The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to IEC 60107-1) NOTE EN 60555-2 has since been replaced by IEC 60107-1:1997.- TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.- Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use.- The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M.- The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). <p>The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for teletext pT for retrofitable teletext</p> <p><i>Justification:</i> Ministerial Decree of 26 March 1992: National rules for television receivers trade. NOTE The ministerial decree above contains additional, but not safety relevant requirements.</p>	N/A

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6.1	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the Council Directive 96/29/Euratom in Germany. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		N/A
14.1	Sweden The following requirements shall be fulfilled: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A

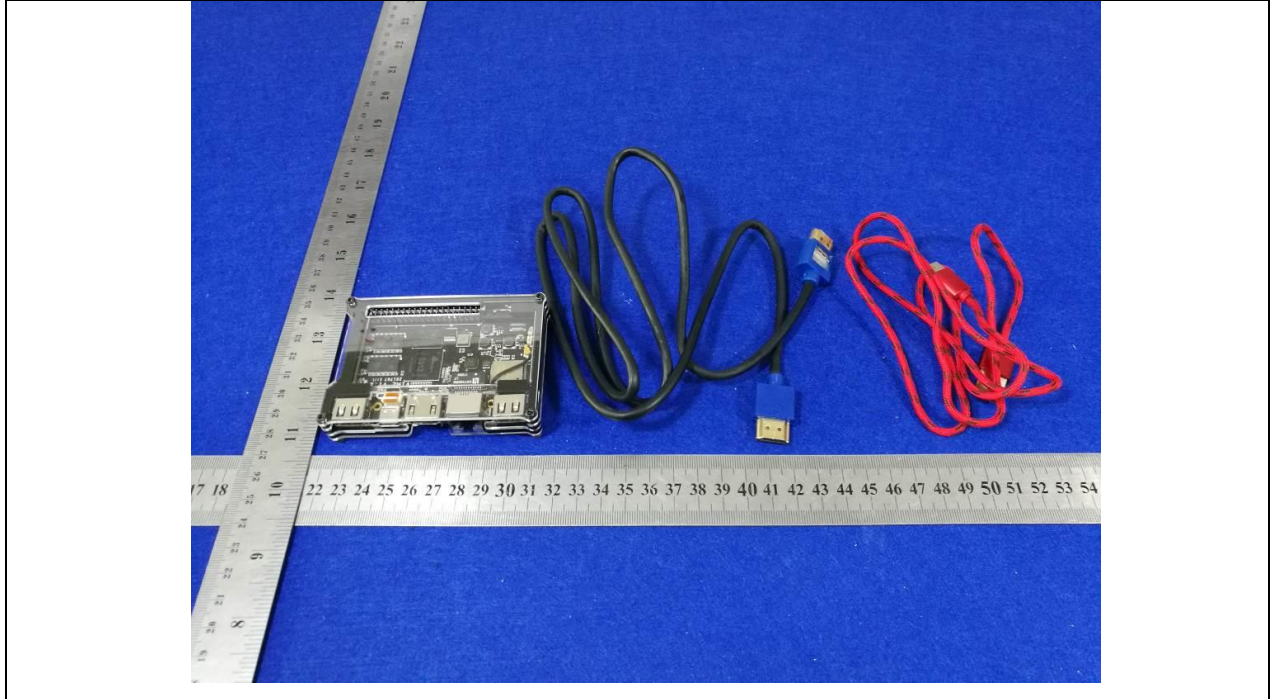
Note: Before placing the products in the different countries, the manufacturer must ensure that:

1. Operating Instructions, Ratings Labels and Warnings Labels written in an Accepted or Official Language of the county in question.
2. The equipment complies with the National Standards and/or Electrical Codes of the country in question.
3. Mains plugs and associated wirings should be assessed to the national standard.

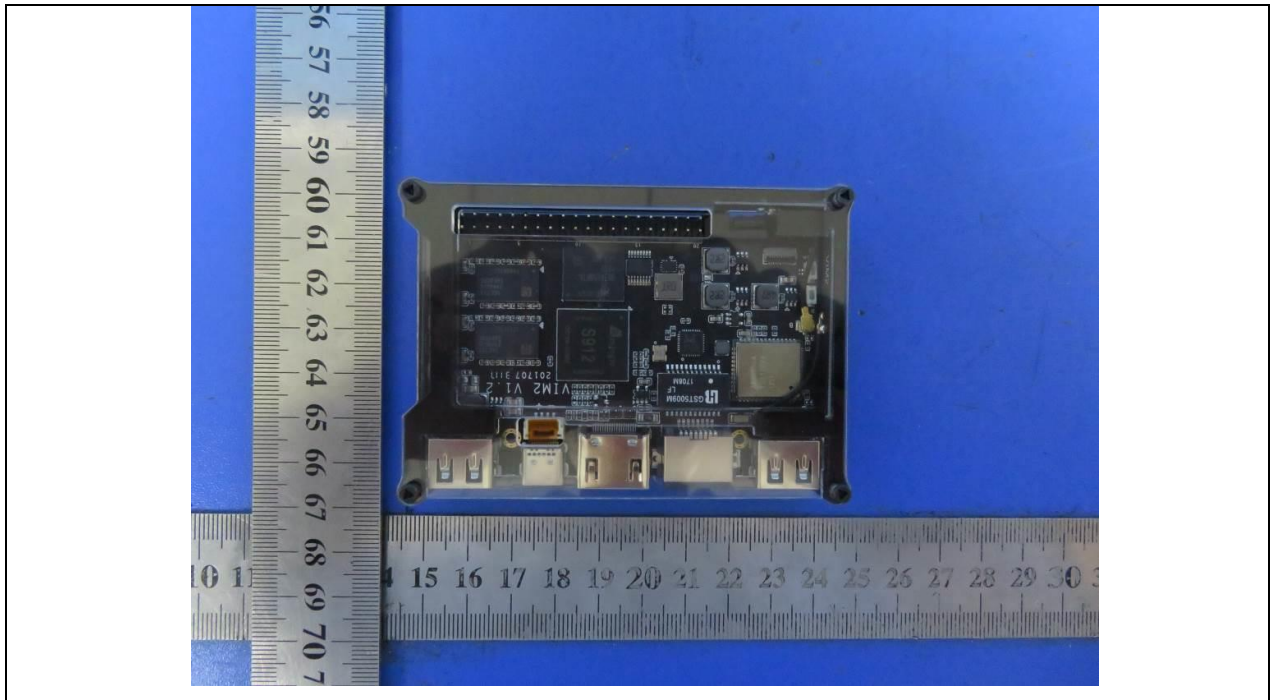


Attachment No. 2

Details of: External View-1



Details of: External View-2



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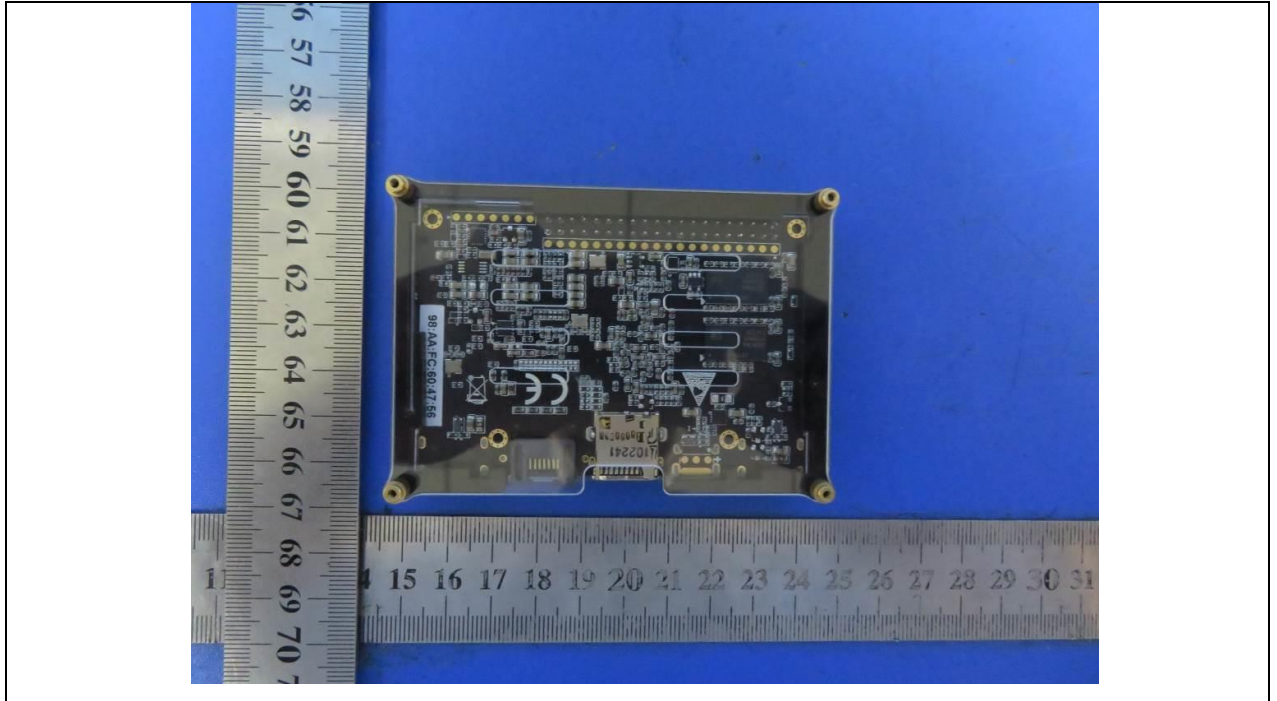
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Attachment No. 2

Details of: External View-3



Details of: External View-4



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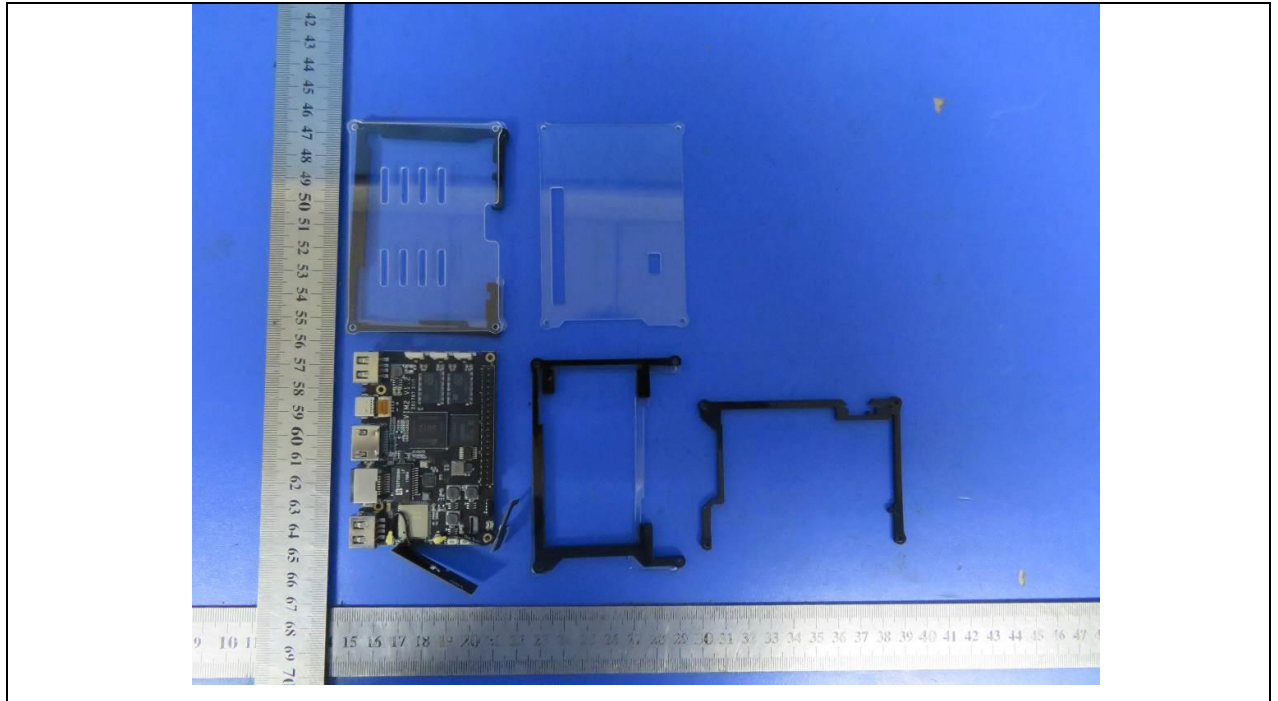
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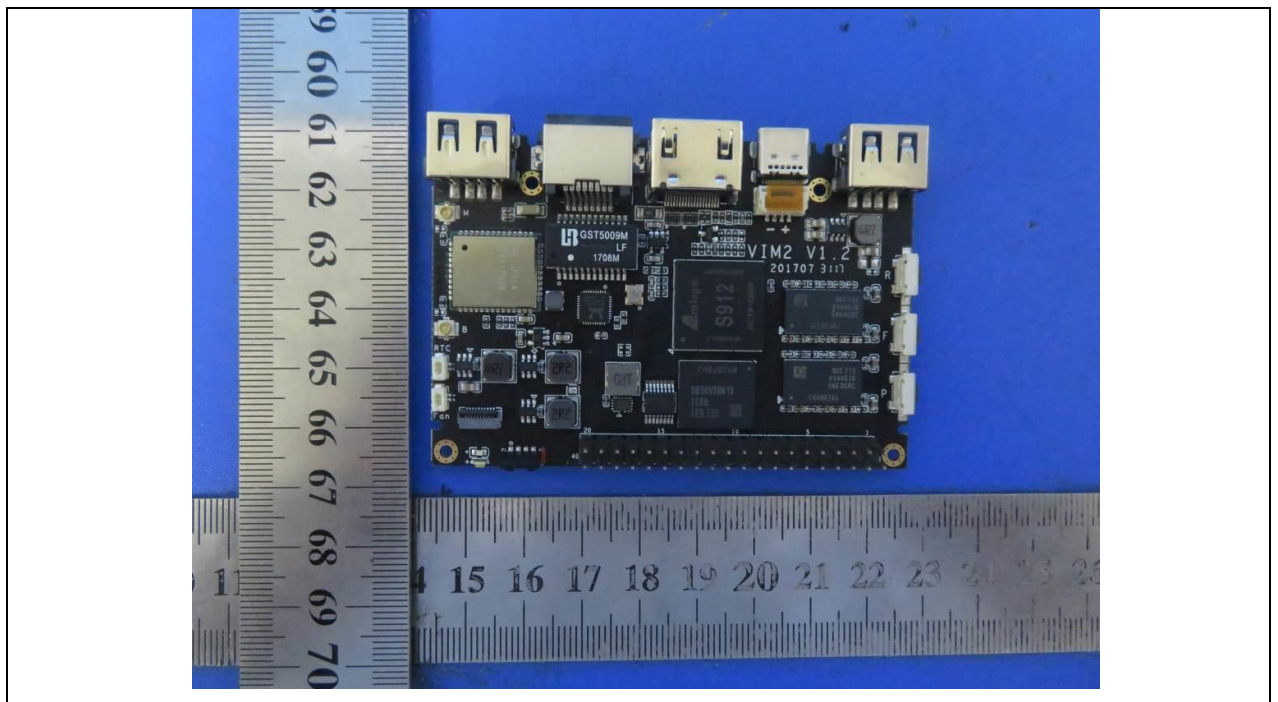


Attachment No. 2

Details of: Internal View-1



Details of: PCB View-1



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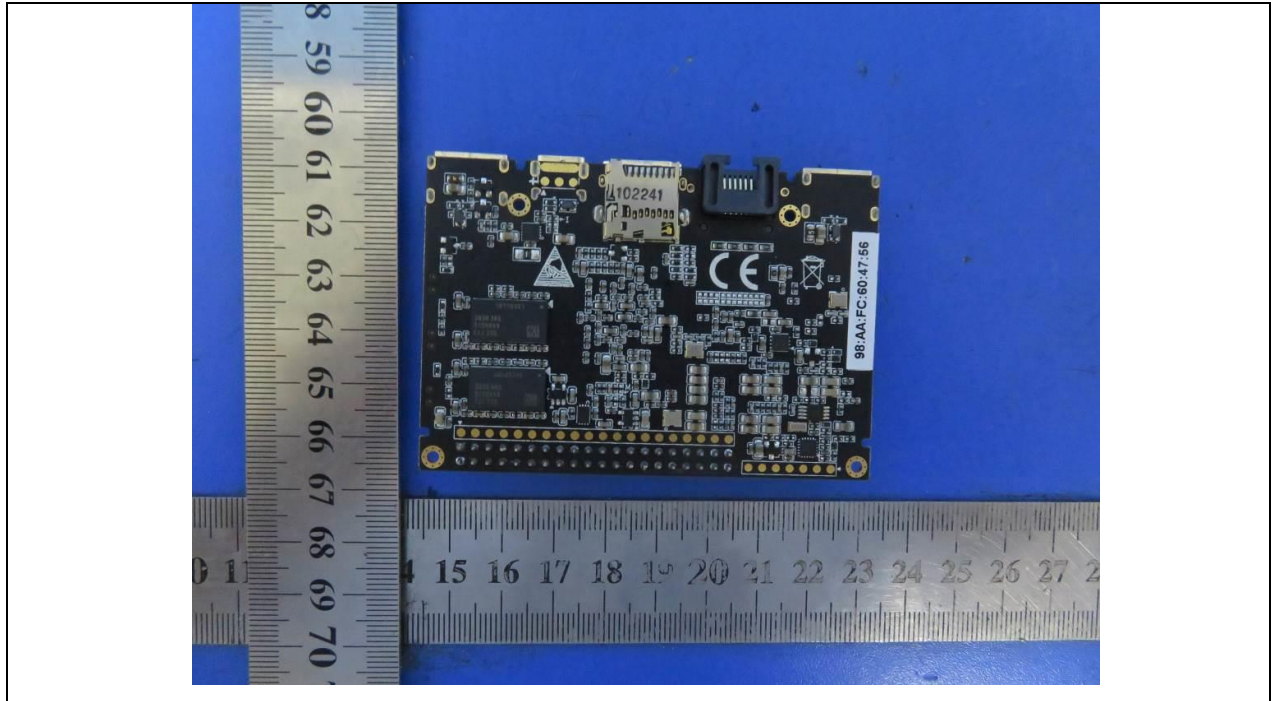
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Attachment No. 2

Details of: PCB View-2



----- END OF TEST REPORT -----

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